

Application No. 10/675,885
After Final Office Action of January 11, 2007

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Docket No.: 59958(70301)

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of Claims:

Claims 1-11. Cancelled.

12 (Currently amended). A device for the layer-by-layer manufacture of a three-dimensional object by means of selective hardening at those sites of a layer of a building material that correspond to the cross-section of the object through the use of a laser, the device comprising:

a laser that provides radiation; and

a focusing unit that focuses the radiation to provide a focused beam;

wherein the laser comprises a switching element for changing the modal composition of the laser radiation which switches changes the modal composition of the emitted laser radiation between a first setting in which a fundamental Gauss mode is emitted and higher order modes are suppressed and a second setting in which the radiation contains additional higher order modes and the overall power of the radiation is increased.

13 (Previously presented) The device according to Claim 12, further comprising a beam expansion element.

14 (Previously presented) The device according to Claim 12, wherein the switching element comprises at least one mode aperture.

15 (Previously presented). The device according to Claim 14, further comprising a beam expansion element.

16 (Withdrawn). A method for the layer-by-layer manufacture of a three-dimensional

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object by the application of laser radiation to the sites of a layer corresponding to the cross-section of the object, said method comprising:

providing laser emitting a beam of radiation and comprising a switching element for changing the modal composition of the laser radiation;

manufacturing the three dimensional object using the laser; and

operating the laser during the manufacture with the modal composition being adjustable.

17 (Withdrawn). The method according to Claim 16, further comprising changing the modal composition to supply a desired amount of energy.

18 (Withdrawn). The method according to Claim 16, further comprising changing the modal composition to a lower order mode depending upon the site on the layer that is impacted by the laser radiation.

19 (Withdrawn). The method according to Claim 16, further comprising changing the modal composition to the fundamental mode depending upon the site on the layer that is impacted by the laser radiation.

20 (Withdrawn). The method according to Claim 16, further comprising limiting the modal composition to the fundamental mode in a marginal area of a partial area of a layer, wherein said marginal area is impacted by the laser radiation, and providing higher order modes of the modal composition, in addition to the fundamental mode, in an inner area of the partial area of the layer.

21 (Withdrawn). The method according to Claim 16, further comprising focusing the laser radiation before it impacts the layer.

22 (Withdrawn). The method according to Claim 21, wherein the laser radiation is focused depending on its modal composition.

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23 (Withdrawn). The method according to Claim 22, further comprising focusing the laser radiation more strongly in a marginal area of a partial area of a layer, wherein said marginal area is impacted by the laser radiation, than the laser radiation is focused in an inner area of the partial area.

24 (Withdrawn). The method according to Claim 16, further comprising:
focusing the laser radiation before it impacts the layer, therefore providing a focused beam;
moving the focused beam across the layer; and
changing the modal composition depending upon the rate at which the focused beam is moved across the layer.